

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2002

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0305110F Satellite Control Network

PROJECT

3276

COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3276 Satellite Control Network	32,873	54,539	17,542	19,845	19,655	24,697	21,263	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

The Air Force Satellite Control Network (AFSCN) mission is to fly operational USAF and other DoD satellites. The AFSCN also provides launch and early orbit tracking operations in support of all major US launches. Air Force Space Command (AFSPC) performs operations, maintenance, modernization, and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems.

The AFSCN is a global infrastructure of control centers, Remote Tracking Stations (RTSs), and communications links that provide the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, and weather satellite operations. The AFSCN is the DoD common user network that provides satellite state-of-health, tracking, telemetry, and commanding (TT&C) for the following operational satellite systems: Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Skynet, NATO III/IV, and classified programs.

AFSCN Improvement and Modernization (I&M) is an ongoing program of replacements and upgrades which will meet AFSPC operational requirements to replace non-standard, unsupportable equipment with more reliable, maintainable and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, less skilled personnel and will significantly reduce hardware/software maintenance costs. The principal efforts within this program are: Network Operations Upgrades, Communications Upgrades, and Range RTS Upgrades.

COMMUNICATIONS UPGRADES: This effort will transition the current, costly point-to-point AFSCN communications network to a distributed communications system that integrates government and commercial networks. Several standardization efforts are being implemented to improve and modernize the communications segment of the AFSCN, including: Archival recording systems to replace obsolete, manpower-intensive analog equipment with automated, standardized digital COTS

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<p>(U) <u>A. Mission Description Continued</u> and COTS-based systems; Wide Area Network Interface Units (WANIU) which standardize hardware, enable future access to the Defense Information System Network (DISN) global grid, and provide an Asynchronous Transfer Mode (ATM) interface; and Operational Switch Replacement (OSR) to provide increased capacity, reliability, data quality, and user access.</p> <p>RANGE UPGRADES: This effort will upgrade the current Automated Remote Tracking Station (ARTS) and other Range assets. Several integrated projects, which are now grouped into the Remote Tracking Station (RTS) block change effort, will standardize the remote tracking stations, upgrade and/or replace outdated equipment in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs.</p> <p>NETWORK OPERATIONS UPGRADES: These upgrades will build upon the Electronic Schedule Dissemination (ESD) and Orbit Analysis Subsystem deliveries to continue to improve AFSCN resource management capabilities.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(U) \$12,736</td> <td>Communications Upgrades: continued upgrades to include OSR and WANIU development.</td> </tr> <tr> <td>(U) \$1,214</td> <td>Range Upgrades: continued Standards Protocol development. Continued Control and Status (C&S) Processor Upgrade development and begin effort to upgrade the ARTS Space/Ground interface upgrade as a continuation of the RTS block change development effort.</td> </tr> <tr> <td>(U) \$384</td> <td>Network Operations Upgrades: began Orbit Analysis Subsystem follow-on development effort to continue upgrades to network operations.</td> </tr> <tr> <td>(U) \$7,298</td> <td>Network Integration and Systems Engineering: continued system engineering and integration of hardware/software to meet evolving satellite program requirements at Operational Control Nodes (OCNs) and RTSs.</td> </tr> <tr> <td>(U) \$11,241</td> <td>Provided program support for Systems Program Office.</td> </tr> <tr> <td>(U) \$32,873</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(U) \$15,500</td> <td>Communications Upgrades: continue communications upgrades to include completion of OSR and WANIU efforts.</td> </tr> <tr> <td>(U) \$25,849</td> <td>Range Upgrades: continue standards protocol development effort. Continue RTS Block Change development effort and system engineering and network integration.</td> </tr> <tr> <td>(U) \$3,000</td> <td>Network Integration and Systems Engineering: continued system engineering and integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.</td> </tr> <tr> <td>(U) \$10,190</td> <td>Provide program support for Systems Program Office.</td> </tr> <tr> <td>(U) \$54,539</td> <td>Total</td> </tr> </table>			(U) \$12,736	Communications Upgrades: continued upgrades to include OSR and WANIU development.	(U) \$1,214	Range Upgrades: continued Standards Protocol development. Continued Control and Status (C&S) Processor Upgrade development and begin effort to upgrade the ARTS Space/Ground interface upgrade as a continuation of the RTS block change development effort.	(U) \$384	Network Operations Upgrades: began Orbit Analysis Subsystem follow-on development effort to continue upgrades to network operations.	(U) \$7,298	Network Integration and Systems Engineering: continued system engineering and integration of hardware/software to meet evolving satellite program requirements at Operational Control Nodes (OCNs) and RTSs.	(U) \$11,241	Provided program support for Systems Program Office.	(U) \$32,873	Total	(U) \$15,500	Communications Upgrades: continue communications upgrades to include completion of OSR and WANIU efforts.	(U) \$25,849	Range Upgrades: continue standards protocol development effort. Continue RTS Block Change development effort and system engineering and network integration.	(U) \$3,000	Network Integration and Systems Engineering: continued system engineering and integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.	(U) \$10,190	Provide program support for Systems Program Office.	(U) \$54,539	Total
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Project 3276		Page 2 of 7 Pages																						
		Exhibit R-2 (PE 0305110F)																						

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$5,067 Range Upgrades: continue upgrades to include development of standards and protocols/WAN serv/security, external user connectivity, and RTS Block Change efforts. Continue system engineering and network integration.</p> <p>(U) \$2,000 Network Operations Upgrades: continue upgrades to network operations to include development of Resource Scheduling Capacity upgrade and system engineering and network integration.</p> <p>(U) \$10,475 Provide program support for Systems Program Office</p> <p>(U) \$17,542 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p style="padding-left: 20px;">This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 20%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">58,105</td> <td style="text-align: center;">56,349</td> <td style="text-align: center;">23,531</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">58,643</td> <td style="text-align: center;">56,349</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-411</td> <td style="text-align: center;">-1,810</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: center;">-877</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: center;">-12,627</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: center;">-11,728</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: center;">-127</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td style="text-align: center;">-5,989</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">32,873</td> <td style="text-align: center;">54,539</td> <td style="text-align: center;">17,542</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p style="padding-left: 20px;">FY01: Administrative delays in proposal evaluation schedule delayed follow-on contract basic award (Satellite Control Network Contract -- SCNC) approximately 13 months. Available contract award funds were below threshold reprogrammed and identified as an Omnibus reprogramming source for higher Air Force priorities.</p> <p style="padding-left: 20px;">FY03: Funds realigned from OPAF to RDT&E, AF to correct error in program profile (\$1.552M); funds reduced for higher DOD priorities (-\$7.498M).</p>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	58,105	56,349	23,531	TBD	(U) Appropriated Value	58,643	56,349			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-411	-1,810			b. Small Business Innovative Research	-877				c. Omnibus or Other Above Threshold Reprogram	-12,627				d. Below Threshold Reprogram	-11,728				e. Rescissions	-127				(U) Adjustments to Budget Years Since FY 2002 PBR			-5,989		(U) Current Budget Submit/FY 2003 PBR	32,873	54,539	17,542	TBD
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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305110F Satellite Control Network				PROJECT 3276	
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF, Electronics & Telecom Equipment (BA 03, PE 0305110F, P-63)	15,694	29,471	45,063	44,567	45,538	53,502	52,348	Continuing	TBD
(U) OPAF, Initial Spares & Repair Parts (BA 05 PE 0305110F, P-104)	1,424	1,523	2,045	4,586	3,295	3,556	3,627	Continuing	TBD
(U) E. Acquisition Strategy The primary objective of the AFSCN I&M program is to reduce the cost of satellite control operations while maintaining or improving reliability, maintainability, operability, and capability of current systems. The AF implemented a new streamlined contracting strategy in FY 1996, resulting in the award of the Range & Communications Development Contract (RCDC), the Network Operations Upgrade Contract (NOUC), and the Network Integration Contract (NIC). In Dec 01 the AF further streamlined its acquisition strategy by competitive award of the Satellite Control Network Contract (SCNC), which consolidates development upgrades, sustainment, system engineering, and integration responsibilities in one contract.									
(U) F. Schedule Profile									
	<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1
(U) COMMUNICATIONS UPGRADES									
(U) - Archival DD-250				*					
(U) - WANIU DD-250						X			
(U) - OSR Incremental Demonstration Review-3	*								
(U) - OSR FCA/PCA			*						
(U) - OSR DD-250								X	
(U) RANGE UPGRADES (RTS Block Change)									
(U) - Begin RTS Block Change (including ARTS upgrade)					*				
(U) - Begin External User Comm Connectivity								X	
(U) NETWORK OPERATIONS UPGRADES									
<div style="display: flex; justify-content: space-between;"> Project 3276 Page 4 of 7 Pages Exhibit R-2 (PE 0305110F) </div>									

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Project 3276				Page 5 of 7 Pages				Exhibit R-2 (PE 0305110F)																																																																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
07 - Operational System Development					0305110F Satellite Control Network				3276	
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
							<u>FY 2001</u>	<u>FY 2002</u>		<u>FY 2003</u>
(U)	Communications Upgrades						12,736	15,500		0
(U)	Range Upgrades						1,214	25,849		5,067
(U)	Network Ops Upgrades						384	0		2,000
(U)	Network Integration and Systems Engineering						7,298	3,000		0
(U)	Program Support						11,241	10,190		10,475
(U)	Total						32,873	54,539		17,542
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	Lockheed Martin (Range & Comm Development Contract)	C/CPAF	Mar 96	140,051	140,051	111,815	12,736	15,500	0	0
	Honeywell Technology Solutions (Satellite Control Network Contract*)	C/CPAF	Dec 01	86,200	86,200	0	1,098	25,849	7,067	52,186
	Lockheed Martin (Network Integration Contract)	C/CPAF	May 96	48,957	48,957	38,659	7,298	3,000	0	0
	*note: EACs include basic contract and options but do not include future ECPs									
	<u>Support and Management Organizations</u>									
	Program Support (FFRDC, SETA, SPO Ops)	various	various	N/A	N/A	57,705	11,741	10,190	10,475	Continuing
										TBD
Project 3276					Page 6 of 7 Pages			Exhibit R-3 (PE 0305110F)		

UNCLASSIFIED

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(U) <u>Performing Organizations Continued:</u>								
<u>Test and Evaluation Organizations</u>								
N/A								
(U) <u>Government Furnished Property:</u>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development				150,474	21,132	44,349	7,067	52,186
Subtotal Support and Management				57,705	11,741	10,190	10,475	TBD
Subtotal Test and Evaluation								
Total Project				208,179	32,873	54,539	17,542	TBD

Project 3276

Page 7 of 7 Pages

Exhibit R-3 (PE 0305110F)